To the Teacher

The issues surrounding bull trout are numerous and complex, often making classroom study difficult. In addition, while there has been a wealth of highly technical research conducted about bull trout, relatively little information has been available in "popular" formats.

This video was produced by Montana Fish, Wildlife & Parks to help call attention to some of the problems facing the species in Montana. This guide is designed to help you use this video with your students, and hopefully stimulate student interest and will become a springboard for further study.

How to use this Guide and Video

You might wish to begin your study of the Bull Trout by studying the basic life history of the fish with your class, and comparing it to other fish with which students are familiar. You can find information on the life history of the bull trout on the next few pages.

The video can be used to reinforce the concepts your class has already discussed. Since the video is fairly short, (17 minutes) you may wish to show the entire tape, then rewind it, showing the tape a second time, pausing for discussion. This guide will break the video into several segments, each of which will offer a unique set of questions and discussion topics. At the conclusion of the video, you will find a complete, uninterupted version of the "Bull Trout Rap", as well as two public service announcements from Montana Governor Mark Racicot.

Finally, at the end of this guide you will find a list of references, including a bibliography and other sources for more information on the bull trout, as well as other activities your class can conduct to learn more about this unique Montana fish.

BULL TROUT

The bull trout has been described by some biologists as a Travelin' Fish. Bull trout have many unique characteristics, some of the most interesting of any fish in Montana.

The bull trout is one of the largest fish **native** to Montana - they are capable of reaching lengths of up to three feet and weights of up to 25 pounds.

Bull trout **spawn**, or lay their eggs, in the fall of the year about the time the needles of the tamarack tree turn a golden brown. Bull trout are very particular about the kinds of streams in which they will spawn. They look for mountain streams where the current is not too fast, with lots of clean gravel, and areas where groundwater flows up from the earth into the stream. Places for the trout to hide, such as logs and undercut banks are also important. When the adult fish has found a good place to spawn, a **redd**, or nest is scooped out of the gravel. This redd may be as large as a car, and serves as a place for the fish to lay their eggs. The eggs remain buried in the gravel and rocks of the stream bottom until about 200 days have

passed, and in spring, the eggs hatch and the young trout (called **fry**) emerge.

While in the small streams, the young fish feed primarily upon aquatic insects such as mayflies and stoneflies. The young bull trout will spend from one to four years huddled among the rocks on the bottom of the stream before **migrating** downstream to bigger streams or lakes, where the young bull trout grow to maturity.

As adult fish, bull trout are predaceous, which means they eat other fish. Although fish make up most of their diet, bull trout have been known to eat frogs, snakes, mice, and even ducks. After about three to six years, the adult bull trout leave the lake or stream and travel back into the smaller tributary streams to spawn again, completing their unique life cycle. Unlike some other fish, like salmon, bull trout do not die after they spawn, but can return to spawn again in later years. Their migratory habits explain why people call bull trout a travelin' fish.

Once common throughout the northwest United States, bull trout numbers have suffered serious declines. There are many reasons for these declines in bull trout populations.

Earlier in this century, anglers thought of bull trout as an enemy, since bull trout fed upon other fish. Anglers were encouraged to kill bull trout, since they thought that other fish would benefit. Bull trout still are vulnerable to over fishing and **poaching**, especially while the adult fish are spawning in small streams. Sometimes people catch bull trout and don't know how to identify them. Nearly everywhere in Montana, all bull trout that are caught must be immediately released back into the water unharmed.

Bull trout are also threatened when their **habitat** is degraded or destroyed. This sometimes happens because of poor forestry, mining, or agricultural practices. When **sediment** like sand and silt find their way into the stream, they may clog up the gravel that bull trout need to spawn, or cause water temperatures to rise.

Sometimes dams or culverts prevent bull trout from reaching the streams they need to spawn. Remember, some bull trout may migrate more than 100 miles in their lifetime!

In some cases, even other fish may be a threat to bull trout. **Exotic** species like the brook trout may **hybridize** with bull trout, producing offspring that are often sterile. Lake trout, once present in only a few Montana lakes, but now more widely distributed, prey on young bull trout, as do large fish of other species such as the northern pike.

Scientists called **biologists** are studying bull trout. They hope to learn more about the fish, their populations, and reasons they are in trouble. With that information, they hope they can help bull trout

numbers recover to safe levels.

Montanans all hope that healthy populations of bull trout will be around for future generations to enjoy. With research, protection, and care, biologists, citizens and anglers will make sure that this *travelin' fish* will always remain a part of Montana's landscape.

Part 1 - The Bull Trout Rap

Start: Beginning of tape
Stop: First boating scene

Well I'm sitting here, resting on the river bank
and I'm trying to figure out just who to thank
I've got the birds and trees and the mountains and the bees
I've got about anything that I please

And in the river, below the shine
there lives a fish that is oh so fine
In the trout world he has lots of pull
They call him the bull

No, it's a different kind of bull I want to tell you about
The Montana native called the bull trout

Give it a shout
Bull trout

They live in the cold, and they live in the clean
Good trout habitat, if you know what I mean

But the bulls in trouble, their numbers are low
They need our help so here's some things you should know
About the bull trout

Give it a shout
Bull trout

Part 2 - Bull Trout in Decline

Start: **First boating scene**
Stop: **Bull trout feeding on surface**
Key Words: species, neglect, biologist, indicator, cold water stream, rainbow trout, brown trout, habitat

1. According to the biologist, what is one reason bull trout are in decline?
2. What is an indicator species?
3. What effect might protecting bull trout have on other fish species?

Discussion:
1. What impacts might listing the bull trout as an endangered specie have?

Part 3 - Electronic Bull Trout

Start: **Bull trout feeding on surface**
Stop: **Biologist pointing with antenna**
Key Words: native, transmitter,sutures, gills, anesthetic, spawn

1. Why are bull trout implanted with radio transmitters?
2. What do biolgists hope to learn about the bull trout?

Discussion:
1. If bull trout are rare, why would a biologist risk injuring one by implanting a radio transmitter?

Part 4 - Landowners

Start: **Biologist pointing with antenna**
Stop: **Landowner and dog looking in the water**

Key Words: critical habitat, predators, water quality, fish barrier, culvert, cutthroat trout

1. How did the landowner think of bull trout when he was a child?
2. What are culverts, and how do they affect bull trout?
3. What other measures did the landowner take to help bull trout?

Discussion:
1. Why is it important for landowners and biologists to work together to help wildlife?

Part 5 - Erosion

Start: **Landowner and dog looking in the water**
Stop: **Two bull trout side by side in stream**
Key Words: erosion, sediment, silt, fry, emerge,

1. What effect does soil have when it erodes into a stream?
2. Do bull trout need fine or large gravel? Why?

Discussion:
1. What might be some of the sources for sediment? How can they be minimized?

Part 6 - Identification

Start: Two bull trout side by side in stream
Stop: Start of music
Key Words: dorsal fin, brook trout,

1. What must you do if you catch a bull trout?
2. How can you identify a bull trout?

Discussion:
1. When a person hunts or fishes, who's responsibilty is it to learn the regulations or how to identify fish and wildlife?

Part 7 - Bull Trout Rap

Start: **Start of music**
Stop: **End of music**

So all is not lost
there's some things to be done
The bull trout recovery has just begun
Just figure they're a fish that adds to the fun of the outdoors of nature- things under the sun

Don't look to others for things to do
Help for bull trout begins with me and with you

Like when you catch a fish take a look at the fin
and if theres no black put it back with a grin

Take charge, take the lead
Do whats right, we'll succeed
Help get your folks and your friends up to speed
Don't put it in your sack

Don't be a quack

The bull trout world is out of whack
so if theres no black, just put it back

If theres no black just put it back!

Related Activities

from the Project Aquatic Wild Activity Guide:

Hooks & Ladders
Riparian Retreat
Blue Ribbon Niche
Aquatic Roots

from the Project WILD Supplement:

Commission Mission

Other Sources of Information

Travelin' Fish; *Montana Outdoors*, March/April 1989
Further Adventures of a Travelin' Fish; *Montana Outdoors*, May/June 1994
Walking the Walk for Bull Trout; *Montana Outdoors*, Sept/Oct 95
Bull Trout Restoration, The Right thing To Do; *Montana Outdoors*, March/April 97
Bull Trout I.D. Guide - available from FWP Offices in western Montana
Bull Trout informational placemat - available from FWP Offices in western Montana